

Title (en)
METHOD AND SYSTEM FOR X-RAY BACKSCATTER INSPECTION OF ADDITIVE MANUFACTURED PARTS

Title (de)
VERFAHREN UND SYSTEM ZUR RÖNTGENSTRAHLRÜCKSTREUUNGSPRÜFUNG VON GENERATIV GEFERTIGTEN TEILEN

Title (fr)
PROCÉDÉ ET SYSTÈME D'INSPECTION PAR RÉTRODIFFUSION DE RAYONS X DE PIÈCES FABRIQUÉES DE MANIÈRE ADDITIVE

Publication
EP 3323617 B1 20220216 (EN)

Application
EP 17200120 A 20171106

Priority
US 201615344677 A 20161107

Abstract (en)
[origin: EP3323617A1] A method (400) for inspection of additive manufactured parts (140) and monitoring operational performance of an additive manufacturing apparatus (100) is provided. The method (400) includes a step of obtaining (430), in real-time during an additively manufactured build process, a backscatter x-ray scan of an area of a build platform (112). The build platform (112) is configured for supporting at least one part (140) during the build process. An evaluating step (440) evaluates, by a processor (602), the backscatter x-ray scan. A determining step (450) determines, based on the evaluating (440), whether an operational flaw with the additive manufacturing apparatus has occurred or a defect (201, 202, 203, 204, 205, 206) in the at least one part has occurred. A backscatter x-ray system (160) has an emitter (161) that emits x-rays and a detector (162) that receives backscattered x-rays. The emitter (161) and detector (162) are located on a movable support (163) located above the build platform (112), and the movable support (163) raises and lowers the emitter (161) and detector (162) with respect to the build platform (112).

IPC 8 full level
B33Y 10/00 (2015.01); **B22F 10/20** (2021.01); **B22F 10/30** (2021.01); **B22F 12/00** (2021.01); **B29C 64/153** (2017.01); **B29C 64/245** (2017.01); **B29C 64/268** (2017.01); **B29C 64/393** (2017.01); **B33Y 30/00** (2015.01); **B33Y 50/02** (2015.01)

CPC (source: EP US)
B22F 10/00 (2021.01 - EP US); **B22F 10/28** (2021.01 - EP US); **B22F 10/36** (2021.01 - EP US); **B22F 12/30** (2021.01 - EP US); **B29C 64/10** (2017.07 - EP US); **B29C 64/153** (2017.07 - EP US); **B29C 64/245** (2017.07 - EP US); **B29C 64/268** (2017.07 - EP US); **B29C 64/386** (2017.07 - EP US); **B29C 64/393** (2017.07 - EP US); **B33Y 10/00** (2014.12 - EP US); **B33Y 30/00** (2014.12 - EP US); **B33Y 50/02** (2014.12 - EP US); **G01N 23/203** (2013.01 - EP US); **G01T 7/005** (2013.01 - EP US); **G05B 19/4097** (2013.01 - EP US); **B22F 10/12** (2021.01 - EP US); **B22F 10/18** (2021.01 - EP US); **B22F 10/80** (2021.01 - EP US); **B22F 12/67** (2021.01 - EP US); **B22F 2999/00** (2013.01 - EP US); **G01N 2223/303** (2013.01 - EP); **G05B 2219/35134** (2013.01 - EP); **Y02P 10/25** (2015.11 - EP US)

Citation (examination)
EP 1634694 A2 20060315 - 3D SYSTEMS INC [US]

Cited by
US2021252791A1; EP3560635A1; FR3096296A1; EP3643481A1; EP3568251A4; US11292198B2; US11532760B2; US11117195B2; WO2020011730A1; WO2018217646A1; WO2019238429A1; WO2020234312A1; EP3831577A1; FR3104057A1; WO2023088597A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
EP 3323617 A1 20180523; **EP 3323617 B1 20220216**; JP 2018108730 A 20180712; JP 7175600 B2 20221121; US 10919285 B2 20210216; US 2018126670 A1 20180510

DOCDB simple family (application)
EP 17200120 A 20171106; JP 2017206711 A 20171026; US 201615344677 A 20161107